

RS-INT  
Regeneration  
Seeding  
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DIRECT SEEDING OF PONDEROSA PINE IN CENTRAL IDAHO AS AFFECTED  
BY ASPECTS, DEGREE OF SCALPING, SIZE AND TIME OF SCREEN REMOVAL  
OF SCREEN PROTECTORS.

Working Plan and Progress Report  
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Introduction

Previous studies have demonstrated that conical shaped screens made of 8 mesh hardware cloth are better than other types tested in keeping rodents out of seed spots and permitting seedling development. The fact is also well established that vegetative competition is detrimental to seedling survival. No conclusive data have yet been obtained on the relative degree of success with seeding that might be expected on different aspects.

This study was designed to obtain data on the effect of two sizes of conical screens and six different times of screen removal on the time and intensity of rodent depredations on seed spots. In addition, the effect of three degrees of scalping on the amount of seedling mortality caused by vegetative competition was studied.

Two different sowings were made on the plots selected for this experiment. The first sowing was made in the fall of 1938, but all plots but one failed to produce sufficient seedlings to make the desired comparisons. The same plots were reseeded in the fall of 1939 with several changes in screen removal times and with the additional treatment of adding a fertilized manure mixture to half the seed spots.

Both the 1938 and 1939 installations are described in this report.

A third sowing in the fall of 1940 was made on only one plot--the station area south slope. The treatments in this sowing were the same as in the 1939 sowings. No additional fertilizer was added for the third sowing. *No screens will be removed until the end of the first growing season.*

#### Plot Locations and Aspects

The variables of this experiment were tested on 9 plots involving 3 aspects, north slopes, south slopes, and flats. The locations and aspects of these plots are as follows:

Clear Creek, T.7 N., R.4E., Sec. 34, Boise Meridian. North slope, south slope and flat. See sketch maps with plot data.

Pine Creek, T.5 N., R.6E., Sec. 7, Boise Meridian. North slope, south slope, and draw bottom.

Elk Creek, T.6 N., R.7E., Sec. 6, Boise Meridian. North slope.

Granite Creek, T. 6 N., R.6E., Sec. 29, Boise Meridian. Flat.

Station Area, T.6 N., R.5E., Sec. 22, Boise Meridian. South slope.

Resown fall 1940.

These areas provide good examples of general conditions in the Boise Basin area.

#### Description of Screens Used

Two sizes of screens were used on each plot. The larger is 11 inches high and 10.5 inches in diameter at the base. The smaller one is 5.5 inches high and 5.5 inches in diameter at the base. These two sizes are believed to be the largest and smallest sizes of screens that could be used considering growing space, weight, and cost.

### Plot Design and Treatments for Fall 1938 Installations

Each plot consists of two subplots one of which contains all the large screens and the other the small screens. Scalp size and screen removal dates were randomized by rows within each subplot. The sequence of the various treatment combinations in each plot is shown in table 1.

In the table the treatments are designated by 2 letter symbols indicating the time of removal and degree of scalping used.

The first letter designates the time of screen removal.

I - immediately (no screen).

S - spring just after the snow melts.

J - June after germination is complete.

A - August after seedling stems have hardened.

F1 - October of first growing season.

F2 - October of second growing season.

The second letter designates the degree of scalping.

N - no scalping.

S - small scalp 12 x 12 x 4 inches in size.

L - large scalp 30 x 30 x 6 inches in size.

Ten seed spots were sown in each row. A stake bearing the treatment designation is set on the uphill end of each row.

Table 1.- Boundary line bearings and order of the randomized rows of each plot.

Location	Station Area	Fine Creek	Fine Creek	Granite Creek	Slk Creek	Fine Creek	Clear Creek	Clear Creek	Clear Creek
Aspect →	South	South	Flat	Flat	North	North	North	South	Flat
Bearing →	S50°E	N200°E	N85°E	S25°W	S50°E	N30°E	N	N25°W	N70°E
Small Cones	•FLN	JL •	•AN	SN •	IL •	•SN	•IS	IL •	FLN •
	•IL	SN •	•FLL	FLS •	IS •	•IL	•AL	IS •	JL •
	•AL	JN •	•JL	SS •	AS •	•FLS	•SL	JS •	SL •
	•IN	AN •	•IS	JN •	JL •	•JL	•FLN	FLI •	IL •
	•SL	AS •	•IL	IL •	FLI •	•IS	•JS	FLN •	AS •
	•FLL	SL •	•FLN	SL •	SN •	•JS	•FLL	SS •	AN •
	•SN	JS •	•SL	IN •	SL •	•AS	•SS	FLS •	IN •
	•AS	IS •	•JN	AL •	JS •	•JN	•JN	AS •	AL •
	•AN	SS •	•IN	JS •	SS •	•IN	•AS	JN •	FLS •
	•IS	IN •	•AS	AS •	FLS •	•FLN	•IL	IN •	SN •
	•FLS	FLI •	•SS	JL •	AL •	•FLI	•SN	SL •	IS •
	•JL	FLS •	•JS	FLI •	AN •	•SL	•IN	AL •	JN •
	•JS	IL •	•AL	AN •	FLN •	•SS	•FLS	SN •	FLI •
	•SS	FLN •	•SN	IS •	JN •	•AN	•AN	AN •	JS •
	•JN	AL •	•FLS	FLN •	IN •	•AL	•JL	JL •	SS •
Large Cones	•F2S	JN •	•AN	SS •	JN •	•F2L	•SL	JN •	IL •
	•IN	AS •	•SL	JS •	IS •	•IS	•IN	FLI •	F2N •
	•SL	IL •	•FLL	FLS •	SS •	•IL	•IS	JL •	SN •
	•JS	SS •	•F2S	IN •	IL •	•JN	•JL	IS •	IN •
	•FLL	FLI •	•SN	IL •	FLN •	•F2S	•JS	F2S •	SS •
	•SN	JL •	•F2L	AN •	SL •	•AL	•IL	AL •	FLI •
	•F2L	SN •	•F2N	F2N •	SN •	•SN	•F2L	FLS •	FLN •
	•AL	F2S •	•JL	FLN •	F2L •	•SL	•AN	F2L •	F2S •
	•FLN	F2L •	•IS	JN •	AN •	•IN	•FLS	IL •	JN •
	•FLS	IN •	•JN	F2S •	JL •	•SS	•SS	SN •	F2L •
	•JN	IS •	•AL	JL •	FLS •	•FLN	•SN	JS •	AS •
	•F2N	F2N •	•FLS	AL •	JS •	•AN	•FLN	IN •	SL •
	•IL	AL •	•AS	AS •	AL •	•AS	•AL	AN •	AN •
	•AN	JS •	•IL	IS •	IN •	•FLS	•JN	F2N •	JL •
	•IS	FLN •	•IN	FLI •	F2N •	•JL	•F2S	AS •	FLS •
	•SS	FLS •	•FLN	SN •	AS •	•F2N	•AS	SL •	IS •
	•JL	AN •	•JS	F2L •	F2S •	•FLI	•FLI	SS •	AL •
	•AS	SL •	•SS	SL •	FLI •	•JS	•F2N	FLN •	JS •

Dots show position of row markers or uphill side of plots.

### Results of Fall 1938 Sowings

Good germination and survival occurred on only one of the nine plots of this experiment--the north slope plot in Elk Creek. Germination was good on five other areas but survival was poor. The three plots on Clear Creek did not even show good germination; hence no data were recorded for these three plots.

Preliminary compilations have been made of the first year data on the Elk Creek Plot but no analyses have yet been made. Germination data should be compiled on the remaining five plots and analysed for significance of differences between treatments.

Third and fifth year survival counts are proposed for the Elk Creek north slope plot. The few remaining seedlings on other plots need not be examined for future survival.

### Plot Design and Treatments for Fall 1939 Installations

Several changes were made in the fall, 1939 installations which were made in the same spots that were prepared in the fall of 1938. The row designations were not changed, but a new translation must be made for them in view of the changes<sup>in</sup> treatments.

The first letter of the symbol designating screen removal time should be interpreted as follows:

I - immediately (no screen).

S - early spring preceeding second growing season (1941)

J - July 10-11, 1940

A - August 14-15, 1940

F1 - End of first growing season.

F2 - End of second growing season.

Scalping treatments remained the same as originally designated. The spots were rescalped, however, to cut out vegetation which invaded the spots since the previous sowings.

Five spots of each row were fertilized at the time of the fall 1939 sowings with a mixture of 4 parts of rotted barnyard manure and 3 parts of a 1-1-1 commercial fertilizer containing muriate of potash, ammonium sulfate, and treble super phosphate. A soil can full of the mixture was applied to each fertilized spot. The five fertilized spots of each row are designated on the data sheets for each plot. The position of the five fertilized spots was randomized among the rows. In some rows they are the top five spots; in other they are the bottom five.

First Year Results of Fall <sup>1939</sup> ~~1940~~ Installation

Ketchie's Progress Report of January 8, 1941 summarizes the 1940 germination and survival in detail. The main points derived from this data are as follows:

1. Large cones gave much better protection than small cones.
2. Large scalps were better than small scalps as judged by survival of seedlings under large screens. Small scalps were no better than no scalp at all.
3. Fertilizers as applied in this experiment were detrimental to survival of seedlings.
4. Removal of screens before the middle of August resulted in extensive damage to seedlings by rodents. Subsequent removal caused no appreciable damage.

5. Best survival occurred in a draw bottom, second best on north slopes, and third best on south slopes. The flat exposure was a complete failure. Three plots, a north slope, a south slope and a flat, in Clear Creek were all complete failures.